

U.S. Antarctic Marine Living Resources Program

2013/2014 Weekly Field Reports

Cape Shirreff, Livingston Island

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Science Report

Seabirds

1. Gentoo and chinstrap penguins in the reproduction study continued to hatch this past week. 62% of the 50 gentoo study plot nests have at least one chick, 10% are still incubating partial or full clutches, and 28% have failed. We estimated peak chinstrap penguin hatch to have occurred on 31 December. To date, 70 of the 100 chinstrap penguin reproduction plots have hatched at least one chick, 13% are still incubating eggs, and 17% have failed.
2. We continue to monitor known-age penguins. Of the 42 known-aged gentoo penguins that initiated clutches, 61.9% have hatched at least one chick, 16.7% continue to incubate, and 21.4% have failed. All 39 known-aged chinstraps that have initiated clutches have hatched their eggs, with 79.5% brooding at least one chick and 20.5% that have failed.
3. Brown skua eggs have started pipping; however, none have hatched yet. Of the 22 pairs of brown skuas that have initiated clutches, five have eggs which are pipping, 11 are still incubating partial or full clutches, and six have failed.
4. Of the kelp gull nests we've been monitoring, at least 12 nests are still incubating clutches. A total of 13 chicks have been observed so far. However, once the chicks hatch they are fairly mobile and cryptic which makes it difficult to obtain an accurate count of their numbers.

Pinnipeds

5. We recovered two of our six GPS/Time depth recorders after the females completed their 6th trip. We have also recovered a GPS/TDR from a female that lost her pup likely due to leopard seal predation; she had only completed two trips. The other three GPS/TDRs have collected data on nine foraging trips. All three have completed three trips to sea. We also recovered one of the seven Mark 9 TDRs after that female lost her pup likely due to leopard seal predation; she had completed three trips. Six of those TDRs are still out collecting data and to date they have collected data on 21 trips. All TDR females have completed at least three trips.



6. Only three of our thirty CCAMLR attendance females have completed six trips to sea. Three attendance females have lost their pups likely due to leopard seal predation, bringing our sample size to 27. Unlike last season, we have not lost any study pups to starvation.
7. Mean trip duration is shorter than last year. Twenty-nine of our study females have completed at least three trips, with a mean trip duration of 3.24 days (s.d. 1.29; range 0.4-6.69).
8. Two of the pups from the three females that have completed six trips to sea have been weighed according to protocol. When the third female leaves on her 7th trip we will weigh her pup as well.
9. We completed the regular fur seal pup censuses of our study beaches this past week. Our peak count of 767 pups occurred on 18 December. Our estimate for the median date of pupping is 6 December. By the end of the month our count was down to 701 pups.
10. We took our first sample of CCAMLR pup weights on 5 January (30 days after the median date of pupping). Male pups were more than 1 kg heavier than last year's sample (mean 9.7 kg; s.d. 1.96; range 6.1-13.8) and female pups averaged 0.6 kg more than last year (mean 8.6; s.d. 1.2; range 4.6-11.4).
11. We continue to monitor our adult tagged female population and mother/pup pairs to get a measure of reproductive success and loss of pups due to leopard seal predation. Pups have begun entering the water and spend considerable amounts of time now playing in shallow water, making them easily accessible to leopard seals.
12. Fur seal diet protocol requires collecting 10 scats each week for analysis of fish bones, squid beaks, and krill carapaces. This week we are in the process of collecting our third sample. To date 25 scats have been collected and 19 samples have been processed. All of the samples processed have been composed of mostly krill.
13. On 3 January we completed our seventh weekly Cape-wide Phocid census.
14. Leopard seals continue to arrive and haul out on our study beaches. As of 6 January we have recorded 61 sightings of 14 tagged seals, and have added photo ID records for another 11 untagged animals to our catalog.



15. This week we conducted our first leopard seal capture of the season. In the next two months we hope to collect data on leopard seal habitat use, diet, movements, and foraging behavior utilizing a combination of diet samples (scat and stable isotope analysis), surface position instruments (GPS), video (CRITTERCAM), and diving behavior (TDR).

Weather

16. This week we have had a series of storms bringing strong winds from the east. Winds averaged 11.7 mph with a maximum wind speed of 43 mph. It was also our second week of above freezing temperatures. The mean temperature was 0.4°C (range: -1.6 to 5.3°C). The mean daily solar radiation was $15,298\text{ W/m}^2$. Sunrise is now at 3:20 am and sunset is at 10:46 pm.

Camp

17. We are extremely pleased to have completed a full mid-season resupply for the first time in several years. The R/V *L.M. GOULD* arrived at Cape Shirreff on the evening of 3 January. At the request of the Captain and MPC, we began operations before 4 AM. Given the unusual hour of the day, we were pleased to see so many of the science party volunteer to come ashore and assist in transferring gear. Transfer operations were completed just before 6 AM. They included nine zodiac loads of fresh food, science gear and fuel coming ashore, and four zodiac loads of trash and empty fuel containers taken off the island. We would like to pass on our sincere thanks to the Captain, crew, and scientists aboard the *GOULD* for their assistance and good humor.
18. Along with our resupply we were pleased to welcome LTJG David Vejar, NOAA Corps officer. David will be a valuable addition to our field team and will be assisting with seabird and pinniped research as well as logistical support of the camp.
19. We were also visited by the *M/V National Geographic Explorer* early on the morning of January 6. Their first attempt to drop off collaborator Greg Marshall on 31 December was foiled by poor weather. Unfortunately, the prospects at 01:30 AM on January 6 were not better, and zodiac operations were not possible. We send our thanks to the *Explorer* for their repeated attempts to support our program, and look forward to better conditions for their next scheduled arrival on 9 January.



20. In anticipation of the arrival of the *L.M. GOULD*, an excavation crew set to work extracting the ATV from its wintery home, and constructing an impromptu bridge (made of old camp door covers) to span areas of deep, wet snow. As a result we were able to use the ATV to transport the heaviest of our gear/food approximately 60% of the way from the landing beach to the main hut.
21. One of our two operating 3 Kw generators went out of service this week. Another unit was repaired and installed so that we are back to two working service generators.

Presented by Doug Krause and Michelle Goh, with assistance from Kevin Pietrzak, McKenzie Mudge, Trevor Joyce, and David Vejar at the Cape Shirreff Field Camp, Livingston Island, South Shetland Islands, Antarctica

